

**IN THE ABSTRACT:**

Please replace the abstract with the new abstract shown on the next page:

ABSTRACT

A state engine receives multiple requests from a parallel processor for a shared state. The state engine includes at least one state element and the at least one state element is adapted to operate, atomically, on the shared state in response to a request made by the parallel processor. The request includes at least a command directing the at least one state element on how to perform an operation on the shared state. The state engine also includes a memory connected to the at least one state element and configured to store the shared state.